

THERMAL BARRIER COATING

ABSTRACT OF THE DISCLOSURE

[0023] A thermal insulating ceramic layer for use on metal alloy components exposed to hostile thermal and chemical environment, such as a gas turbine engine used to generate electricity. The preferred thermal barrier layer is formed using dense vertical cracking and formed of zirconia that is partially stabilized by yttria in a preferred amount of less than 4 weight percent and about 1 weight percent Hafnia. The ceramic layer is optimized to protect the underlying superalloy component from erosion, chipping, and handling, while reducing the cost of the protective layer. An alternative method of preparing the thermal barrier coating uses electron beam physical vapor deposition.